

REMARKS

Claims 1-21 are rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In particular, the Examiner maintains that the specification does not provide examples of testing the sprinkler arrangement and that the specification does not disclose if fire tests were conducted in accordance with and met any Factory Mutual and Underwriter's Laboratory standards for specific materials. We respectfully traverse.

In particular, we direct the Examiner's attention to the specification, where it is noted that the commercial embodiment of the automatic fire protection sprinkler of the invention is represented by a "25.2 K-Factor, Model ESFR-25™ pendent sprinkler assembly, available from Grinnell Corporation, 3 Tyco Park, Exeter, New Hampshire 03833" (page 20, line 5-9) and that this commercial sprinkler is "listed and approved by Factory Mutual Research Corporation (FM) as an 'Early Suppression Fast Response Pendent Sprinkler' design for use with wet pipe, automatic sprinkler systems for the fire protection of high-piled storage" (page 20, lines 10-15). It is noted further that this listing permits the commercial sprinkler to be used to protect, e.g., "encapsulated and non-encapsulated, Class I, II, III and IV, as well as cartoned unexpanded plastics" (page 20, lines 27-30), "heavy and medium weight paper storage" (page 21, lines 8-10), and "on-side and on-tread (not interlaced) storage of rubber tires" (page 21, line 29 to page 22, line 2). We direct the Examiner's attention also to the specification at page 22, line 11 et seq., where it is noted that the mentioned commercial sprinkler "is also listed by Underwriters Laboratories Inc. (UL) and by UL for use in Canada (C-UL) as a 'Specific Application Early Suppression Sprinkler' for use in accordance with NFPA 13, NFPA 213, and NFPA 213C [now part of NFPA 13]" (the complete disclosures of which are incorporated into the application).

While exhaustive testing of sprinklers and recitation of examples of testing of sprinklers for broad ranges of materials are not requirements for patentability, the fact that a commercial embodiment of the sprinkler of the present invention is listed by Factory Mutual and by Underwriters Laboratories conveys immediately to those skilled in the art (1) that the sprinkler has been tested, and successfully passed that testing, and (2) the specific nature of the testing to

which the sprinkler has been subjected. No further information is required for those skilled in the art to practice the claimed invention. However, for the information of the Examiner, submitted herewith is a copy of the "Fire Test Data Summary" for the Model ESFR-25™ Sprinkler, prepared by Underwriters Laboratories Inc. for Grinnell Corporation on September 30, 1998.

The claims have also been amended to clarify that, in accordance with industry standard, the recited minimum pressure is the minimum design flowing pressure at the most remote sprinkler. Specification of water supply pressure, piping layout, pipe size, etc. for delivering water at the pressure(s) stated in the claims is a simple matter of design, applying known principals of hydraulics, such as employed daily by those skilled in the art of plumbing and sprinkler piping design. We respectfully request that the rejection under 35 U.S.C. §112, first paragraph, be withdrawn.

Claims 1-21 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

In response, claims 1 and 21 have been amended, and new claims 22-35 have been introduced, to include storage and ceiling heights, as well as container and shelving limitations, specific to each of the minimum design flowing pressures (at the most remote sprinkler), as recited in the specification in TABLE III (page 22, lines 26-32). Support for the subject matter introduced to the claims is found in the specification, including at page 22, lines 11-32. No new matter has been introduced. We respectfully request that the rejection under 35 U.S.C. §112, second paragraph, also be withdrawn.

Claims 1 and 21 stand rejected under 35 U.S.C. §102(b) as being anticipated by NFPA 13. We respectfully traverse.

In particular, the Examiner cites Table A-5-3.5, at page 120 of NFPA 13, for data on ESFR sprinklers having a nominal K-factor of 13.3-14.5 operating at a sprinkler design pressure of 50 psi (at storage and ceiling heights of 25 feet and 30 feet, respectively, for palletized and solid pile storage or 20 feet and 25 feet, respectively, for roll paper on end storage). In contrast, according to Applicant's invention, as now more clearly claimed, the sprinkler, in preferred embodiments, has a K-factor of about 25 (claims 1 and 22-24) or a K-factor of about 25 or more (claims 21 and 25-27) and a minimum design flowing pressure of about 15 psi (at storage and

ceiling heights of 25 feet and 30 feet, respectively, claims 1 and 21); 20 psi (at storage and ceiling heights of 30 feet and 35 feet, respectively, claims 22 and 25); 25 psi (at storage and ceiling heights of 35 feet and 40 feet, respectively, claims 23 and 26); or 40 psi (at storage and ceiling heights of 40 feet and 45 feet, respectively, claims 24 and 27). We submit, therefore, that NFPA 13 fails to teach, or suggest, Applicant's invention, as now more clearly claimed.

Claims 2-9, 11-18 and 20 stand rejected under 35 U.S.C. §103(a) as being obvious and therefore unpatentable over NFPA in view of Meyer et al. U.S. 5,366,022. We respectfully traverse.

In particular, claim 2, from which all the other claims depend, either directly or indirectly, specifically recites that the early suppression fast response pendent-type fire protection sprinkler of the invention has a deflector defining at least two **reentrant slots**. The term "re-entrant slot" as used in the claims is defined in the specification, e.g., at page 4, line 31 to page 5, line 3, as follows:

A re-entrant slot is defined as a cutout extending through a deflector and generally radially inwardly from an opening at the deflector periphery, the slot having a transverse width which is larger at a more radially inward portion of the deflector than the transverse width nearer the peripheral edge of the deflector.

The Examiner bases his rejection on slots 44 and 45 appearing in Fig. 2 of Meyer et al. '022, which the Examiner characterizes as a "re-entrant slot" as described and claimed as an element of the deflector of the fire protection sprinkler of Applicant's invention. In response, we direct the Examiner's attention to the definition of "re-entrant slot" recited by Applicant in the present application, as reproduced above, which requires, in particular, a slot "having a transverse width which is larger at a more radially inward portion of the deflector than the transverse width nearer the peripheral edge of the deflector."

Certainly none of the slots shown or described in Meyer et al. '022 is a "re-entrant slot" as defined by Applicant, and it is well established in the law that an applicant is entitled to be his own lexicographer, in particular where the definition is clearly set forth in the specification (see, e.g., Markman v. Westview Instruments, Inc., 52 F.2d 967, 979, 34 USPQ2d 1321, 1330 (Fed. Cir. 1995)). Rather, in contrast to Applicant's re-entrant slots, each of the slots described in Meyer et al. '022 has a constant width along its radial length. Meyer et al. '022 simply does not

teach slots "having a transverse width which is larger at a more radially inward portion of the deflector than the transverse width nearer the peripheral edge of the deflector." Therefore, Meyer et al. '022 does not teach, nor suggest, Applicant's invention of claims 2-9, 11-18 and 20, as now more clearly defined, nor does NFPA 13 provide these features found lacking in Meyer et al. '022. We therefore respectfully request that these grounds for rejection be reconsidered and withdrawn.

Claim 19 stands rejected under 35 U.S.C. §103(a) as being obvious and therefore unpatentable over NFPA 13 in view of Meyer et al. '022, and further in view of Bower U.S. 1,165,313. We respectfully traverse.

In particular, as discussed above, Meyer et al. '022 and NFPA 13 provide no teaching, nor suggestion, for the sprinkler of Applicant's invention having a deflector with re-entrant slots extending through a deflector, each re-entrant slot extending generally radially inwardly from an opening at the deflector periphery and having a transverse width which is larger at a more radially inward portion of the deflector than the transverse width nearer the peripheral edge of the deflector. Also, Meyer et al. '022 and the present invention both relate to pendent-type sprinklers, in which water from the sprinkler orifice is directed relatively downward onto the deflector, to be spread over the area to be protected. In contrast, Bower '313 describes an upright-type nozzle in which upwardly directed flow is redirected downward by the deflector 11. Finally, the "teaching" relied upon by the Examiner is given so little attention by Bower '313 that disclosure of the configuration of "serrations or projections" of the deflector is limited to the side elevation views of FIGS. 1 and 2, where the projections are drawn with total lack of uniformity of shape. Clearly, absent impermissible use of hindsight, this limited "teaching" of Bower '313 would not suggest to one skilled in the art the modifications and refinements of NFPA 13 and Meyer et al. '022 necessary to achieve the features of Applicant's invention as claimed in claim 19.

Applicant acknowledges indication by the Examiner that claim 10 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 10 has accordingly been rewritten in independent form, including the limitations of the base claim (claim 1) and the intervening dependent claims (claims 2 and 9). We submit that claim 10 is now in condition for allowance.

Applicant : Michael A. Fischer
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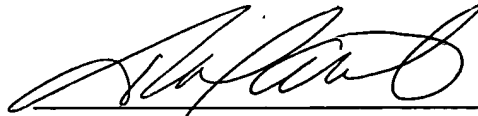
Attorney's Docket No.: 00232-194001

New claims 28-31 and 32-35 are introduced into the application in order to define Applicant's invention with appropriate scope.

Applicant submits that all of the claims are now in condition for allowance, and early favorable action is solicited. Filed herewith is a Petition for Automatic Extension with a check for \$2,680.00 in payment of the required fee (one month, large entity) and in payment of the fee for excess claims required by the above amendments. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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